

DMB/50.55(e)

ILLINOIS POWER COMPANY



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500 SOUTH 27TH STREET, DECATUR, ILLINOIS 62525
September 30, 1981

Mr. James G. Keppler
Director-Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

50-461



Dear Mr. Keppler:

Deficiency 80-08
10CFR50.55(e)
Suspect Cracking in Certain
Electrical Hanger Hardware

My letter of January 30, 1981, was the final report on cracked "superstrut" fittings which had been discovered at CPS. It was also an interim report on electrical hanger design applications which it was thought might be affected by hardware performance observed during the cracked fitting investigation. We were concerned at that time about the potential impact on CPS electrical hanger design of uncertainties regarding use of manufacturer's design load data. My letter of April 20, 1981, requested additional time to evaluate this question.

This letter is a final report on the manufacturer's design load data and our electrical hanger designs. Our conclusion is that this problem is reportable as a deficiency in accordance with the requirements of 10CFR50.55(e).

Investigation of Design Load
Data Applicability

1. Statement of Reportable Deficiency

The manufacturer's catalog design load data were discovered to be inappropriate for direct application to dynamic loads. The architect/engineer had previously utilized the published data for the CPS electrical hanger designs and was not aware that this was unsatisfactory until testing associated with the cracked fitting analysis resulted in "failures" below the ultimate values given in the manufacturer's catalog.

2. Investigation Results

A/E specified tests confirmed that the manufacturer's original design data were not directly applicable to combined loads. Rather, they were limited to direct shear and tension loads only. In fact, the nature of CPS loads

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requires consideration of simultaneous horizontal and vertical components whose resultant connection loads are characteristically different from those allowed by the manufacturer's data. Consequently, the manufacturer's catalog design capabilities must, in some cases, be adjusted downward for application to CPS designs.

Using the results from various tests stipulated by the A/E as a basis for reducing catalog data, the previous electrical hanger design was re-evaluated. As a result the A/E found it necessary to modify 118 CPS electrical hangers.

3. Corrective Action

The electrical hangers which need to be modified have been identified by the architect/engineer. An acceptable add-on modification design detail has been issued to the field and modification work is planned.

The architect/engineer has held several internal meetings where this item has been discussed in detail with the Project personnel. Design engineers on the Clinton project are familiar with the problem and its cause.

The manufacturer has indicated that he will revise his catalog data and notify other A/E's and users of superstrut fittings.

4. Safety Implications-Significance

Some of the electrical hangers redesigned as a result of this investigation support raceway systems which carry nuclear safety-related wiring or could, theoretically, interact with other nuclear safety-related items. If the 118-electrical hangers were not modified, the safety margins during a design basis seismic disturbance would have been reduced. However, in the engineer's judgment, no failure would have resulted from this reduction in design margin.

Although we believe that no hazard to the public health and safety would have resulted had this problem gone undetected, the effort required to determine the remaining safety margin would be prohibitive and, thus we are considering it reportable.

This letter is hereby submitted as a final report in accordance with 10CFR50.55(e), and I trust that it is sufficient for your analysis and evaluation of the deficiency and corrective action.

Sincerely,



L.J. Koch
Vice President

LJK/rlj

cc: H.H. Livermore, NRC Resident Inspector
Director, Office of I&E, USNRC, Washington, DC 22013
Director-Quality Assurance
Superstrut